

**APPLICATION FOR GRANT
2000 CAPITAL GRANTS PROGRAM
COLORADO RIVER WATER CONSERVATION DISTRICT**

Project Title: Monitor Ditch Irrigation Diversion Project

Project Sponsor: North Fork River Improvement Association
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Hotchkiss, CO 81419

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Project Grant Amount: \$15,000
Total Project: \$119,738
Match Amount: \$104,738

Basin: Gunnison

District Purpose: Implement improvements of an existing irrigation diversion to eliminate annual gravel dams in the river and promote water use efficiency in keeping with the goals and objectives of the watershed management action plan of the North Fork of the Gunnison River.

Project Summary: This project is designed to divert decreed water into the existing Monitor irrigation ditch through a permanent headgate. The headgate will be sized to allow only decreed water and thereby increase in-stream flows in the channel. This design will also eliminate the need for bulldozers to construct annual gravel diversions that destabilize the channel and destroy habitat. This project will improve water delivery efficiency, decrease maintenance, improve water quality, stabilize banks, improve habitat, reduce sediment in the ditch, and educate the community. This project can be used to illustrate available technology for use at other diversion points in the watershed as well as throughout the western US.

Project Description and Narrative

The North Fork River Improvement Association, (NFRIA), is a grassroots, community led non-profit coalition of landowners dedicated to maintaining the traditional uses of the North Fork of the Gunnison River while improving stream stability, riparian habitat, and ecosystem function. The organization empowers local citizens of the North Fork Valley as the driving force behind restoration efforts. The intent of this grant application is to promote the responsible and efficient use of Colorado's compact entitlement. The project would improve an existing irrigation diversion structure and promote water use efficiency, increase in-stream flows, improve water quality, reduce sediment, and improve habitat as outlined in the community-directed Watershed Action Plan for the North Fork.

The most traditional use of the river in the North Fork Valley is the diversion of irrigation water for agricultural production. This valley has been diverting water for irrigation since 1884. Today there are thousands of acres of prime agricultural land under irrigation. There are a few major diversions along the river that utilize permanent headgates at the river but most simply divert water into their ditches by plowing up gravel dikes from the bottom of the river. This practice destabilizes the river channel, destroys riparian habitat, and adds excessive sediment to the river. With the loss of riparian vegetation and bank stability, many farmers and ranchers have found that the river has completely moved into a new channel after the following spring runoff. This aggravates the situation and requires even further earth-moving activities in the channel. Furthermore, most ditch companies find that they need to divert the whole river into their ditch and return what they do not have a decree for further down the river. This process short-circuits the river and further destroys habitat. This annual practice perpetuates a continuing cycle of increased channel destabilization and further promotes accelerated erosion and decreased water quality.

NFRIA has recently completed a new irrigation diversion structure for the Smith-McKnight ditch in Hotchkiss. The success of this project has sparked new interest from other ditch companies in the North Fork to improve their diversions through other cost-sharing initiatives. There are still at least seven other diversions on this river along the 10-mile stretch between the Towns of Paonia and Hotchkiss that still use annual gravel "push-up" dams to divert decreed water. In most cases it is the only option affordable to these irrigation companies. The CRWCD has been instrumental in the success of the Smith-McKnight project by partnering in that cost-sharing initiative. This proposed project would demonstrate a cost effective, long-term solution to the problem and build on a growing momentum to improve water efficiency on the North Fork.

This project proposes constructing a permanent concrete headgate structure designed to divert the decreed allocation of water allowed from the North Fork of the Gunnison River and keep any additional water in the river to be used for habitat. The headgate structure will consist of a reinforced concrete headwall with wingwalls, cutoffs, footers, and a slide gate. The structure will be located at the existing Monitor ditch diversion point midway between Paonia and Hotchkiss. This proposal would utilize a large diameter rock (3' to

6') weir across the river to create the necessary backwater for a low-flow diversion while still allowing for fish migration, bedload transport, and safe recreational boating. The maximum drop of the rock weir would be approximately 18". Balancing the morphological variables of the channel and constructing rock toe protection with overhanging native vegetation on the outside bank will stabilize the channel upstream of the diversion and improve habitat. Both banks approximately 500' up and downstream of the diversion will also be planted with willows. This diversion structure will eliminate the need to plow up gravel diversion dams each summer and allow the river to maintain morphological integrity.

The Monitor Ditch Company approached NFRIA following the construction of the Smith-McKnight demonstration project to help develop a funding partnership similar to the previous one. The Colorado State Soil Conservation Board has recently awarded this project \$10,000 from its Matching Grants program and the Monitor Ditch Company will match that amount. An application has been submitted to the Bureau of Reclamation's Water Conservation Field program for \$25,000 and past partners have expressed a renewed interest in participating in this project. The Colorado Dept of Transportation and the Delta County Public Works Dept loaded and hauled over \$90,000 worth of rock for the last project and have tentatively agreed to repeat that offer during the fall ditch cleaning efforts along state and county right-of-ways. The Natural Resources Conservation Service' area office in Grand Junction will assist in the design of the structure. The addition of new partners will also be researched.

Construction is planned between November 2000 and February of 2001 after the forthcoming irrigation season and when the flow of the river is at it's lowest point. The project should be completed within 60 days. The project will be monitored by evaluating the reliability of the structure to divert water during low-flow periods. Permanent cross sections will be developed within the project to determine erosion rates and overall channel stability. Vegetative transects will also be used along with photo points to evaluate the density and diversity of riparian vegetation. Results will be published in the Association's newsletter, on the Association's web site, in local papers, and in reports to funding agencies.

**Monitor Ditch Irrigation Diversion Project
Project Budget**

Item	Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS	1,000	1,000
2	Ditch Excavation	30	Hrs	125	3,750
3	30" CMP (Slide Area)	100	LF	25	2,500
4	Gravel Backfill at Headgate	80	CY	18	1,440
5	Reinforced Concrete for Inlet Structure	22	CY	650	14,300
6	ADS N12 Pipe at Headgate	60	LF	35	2,100
7	24" Slide Gate	1	EA	2,500	2,500
8	Headgate Trash Rack	1	EA	600	600
9	Rock Rip-Rap at Ditch Bank	60	CY	30	1,800
10	3'-6' dia Rock for in-channel grade control	1000	CY	50	50,000
11	Dewatering (Concrete Structure)	1	LS	2,000	2,000
12	Concrete Sluice Structure (ditch wasteway)	1	LS	10,000	10,000
13	Move and Reset Existing Parshall Flume	1	LS	300	300
14	Willow planting for bank stabilization	500	LF	3	1,500
15	Field Surveying	20	Hrs	75	1,500
16	Grant Administration	1	LS	500	500
Subtotal					95,790
17	10% Contingencies				9,579
18	15% Engineering				14,369
TOTAL					119,738

Project Schedule

	Begin	Complete
1 Final Engineering & Construction Drawings	Aug 2000	Oct 2000
2 Construction	Nov 2000	Feb 2001
3 Administration/Coordination/Final Report	Jun 2000	Apr 2001
4 Monitoring	Jan 2001	Annual for 3 years min.

Participant Data

Colorado River Water Conservation Dist.	15,000	cash
Bureau of Reclamation	25,000	cash
Monitor Ditch Co.	15,000	cash & in-kind
North Fork River Improvement Association	5,000	in-kind
Colorado State Soil Conservation Board	10,000	cash
Natural Resources Conservation Service	5,000	in-kind
General Service Foundation	10,000	cash
Colorado Dept. of Transportation	35,000	in-kind
TOTAL	120,000	